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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,835	02/14/2001	Dirk Quintens	27500/016	1614
7590 05/24/2007				
Joseph T. Guy Ph.D. Nexsen Pruet Jacobs & Pollard LLP 201 W. McBee Avenue Greenville, SC 29601		EXAMINER DICUS, TAMRA		
		ART UNIT 1774		
		MAIL DATE 05/24/2007		
		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/782,835	Applicant(s) QUINTENS ET AL.	
	Examiner Tamra L. Dicus	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-8,10-18 and 20-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1774

DETAILED ACTION

Prior rejections are withdrawn due to Applicant's amendments.

Claim Objections

Claim 1 is objected to because of the following informalities: In line 10, the phrase "alcohol as principal binder" appears to miss an "a". Perhaps Applicant meant "alcohol as a principal binder". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "said cationic mordant". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 6-8, 10, 16, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. in view of Santo et al.

Art Unit: 1774

Kawano teaches according to instant claim 1, an ink jet recording comprising a support (substrate of inherently opaque paper or resin-coated paper, 8:60-68, 9:1-10, 11:1-5, meeting wet strength paper of instant claim 1 and opaque further to instant claim 16), and an ink receiving layer consisting essentially of an inorganic porous silica pigment (Examples 4-6, per instant claim 1), binder modified polyvinyl alcohol (4:53, 6:4-5), and film-forming polymer latexes inherently having a glass transition temp lower than 50 degrees C selected from SBR, methacrylate-butadiene copolymers, and acrylic and methacrylate ester copolymer latexes (styrene-butadiene and acrylate latex, 4:59-68, 5:60-68, 6:33-47, per instant claims 1, 6-8). A top layer is also employed at 7:10-15, 43-45, per instant claim 20. Kawano also teaches an amorphous silica size of below 15 microns (meeting applicant's range of between 1 and 15 microns, per instant claim 4). Kawano discloses the cationic mordant per instant claims 10 and 22-23 at 6:56-57, in the top layer and agents listed per claim 24 (see 2:59-68, 7:10-14, 8:1-68). Kawano does not teach the dry coverage of instant claim 21. However, It is submitted the optimal and/or claimed values of the respective material would have been obvious to the skilled artisan at the time the invention is made since it has long being held that such discovery, such as an optimum value of the respective result effective variable involves only routine skill in the art. In re boesch, 617 F.2d 272,205 USPQ 215(CCPA 1980). Claims 1, 4, 6-8, 10, 16 and 20-24 are addressed.

Kawano does not expressly teach silanol modified PVA, but does teach general modified PVA are conventionally used as aforementioned.

Art Unit: 1774

Santo teaches an ink jet recording using also as a binder, a specific type of modified PVA such as silanol modified polyvinyl alcohol (9:64-10:30, 10:8-10) when used for ecology (10:5-10).

It would have been obvious to one having ordinary skill in the art to have modified the ink jet of Kawano to use silanol modified PVA because Kawano suggests modified PVA is conventional and Santo teaches silanol modified PVA serves ecology purposes (10:5-10).

Claims 1, 4-8, 10, 16-18, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al in view of Shaw-Klein et al. (SK).

Kawano teaches according to instant claim 1, an ink jet recording comprising a support (substrate of inherently opaque paper or resin-coated paper, 8:60-68, 9:1-10, 11:1-5, meeting wet strength paper of instant claim 1 and opaque further to instant claim 16), and an ink receiving layer consisting essentially of an inorganic porous silica pigment (Examples 4-6, per instant claim 1), binder modified polyvinyl alcohol (4:53, 6:4-5), and film-forming polymer latexes inherently having a glass transition temp lower than 50 degrees C selected from SBR, methacrylate-butadiene copolymers, and acrylic and methacrylate ester copolymer latexes (styrene-butadiene and acrylate latex, 4:59-68, 5:60-68, 6:33-47, per instant claims 1, 6-8). A top layer is also employed at 7:10-15, 43-45, per instant claim 20. Kawano also teaches an amorphous silica size of below 15 microns (meeting applicant's range of between 1 and 15 microns, per instant claim 4). Kawano discloses the cationic mordant per instant claims 10 and 22-23 at 6:56-57, in the top layer and agents listed per claim 24 (see 2:59-68, 7:10-14, 8:1-68). Kawano does not teach the dry coverage of instant claim 21. However, It is submitted the

Art Unit: 1774

optimal and/or claimed values of the respective material would have been obvious to the skilled artisan at the time the invention is made since it has long being held that such discovery, such as an optimum value of the respective result effective variable involves only routine skill in the art. In re boesch, 617 F.2d 272,205 USPQ 215(CCPA 1980). Claims 1, 4, 6-8, 10, 16 and 20-24 are addressed.

Kawano does not expressly teach silanol modified PVA, but does teach general modified PVA are conventionally used as aforementioned (instant claim 1). Kawano does not expressly disclose the modification degree range of silanol and the viscosity requirements of the aqueous solution of instant claim 5 or producing silanol modified PVA from hydrolyzing copolymer vinyl acetate and silane monomer vinyltrimethoxysilane per instant claim 17. Also Kawano is silent to teaching PVA modified with the silanes of instant claim 18.

SK teaches silanol modified PVA reacted with silanes having hydrolysable groups such as alkoxysilanes including those of instant claims 17 and 18 (3:50-60, vinyltrimethoxysilane, 3-methacryloxypropyltrimethoxysilane, and b-(3,4-epoxycyclohexyl)ethyltrimethoxysilane). SK teaches the results are enhanced water resistance and an improvement of waterfastness (3:14-30, 7:1-30, 7:50-55)

It would have been obvious to one of ordinary skill in the art to have modified the ink jet of Kawano to include a silanol PVA modified as claimed because Kawano teaches modified PVA is conventional and SK teaches said preferred modified PVA incorporates silane group agents for ease of handling and reactivity within an ink receiving layer yielding enhanced water resistance and an improvement of waterfastness (3:14-60, 4:10-40, 7:1-30, 7:50-55, SK). The modification degree and viscosity are properties of the PVA and as such are either inherent to the

Art Unit: 1774

end product or if not inherent, obvious to have conventionally made as the same starting elements are provided by the prior art.

Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. in view of Shaw-Klein et al. (SK). in view of Mochizuki et al. and further in view of USPN 6,022,440 to Nordeen et al.

Kawano et al. in view of Shaw-Klein et al. (SK) is relied upon above for all it teaches as set forth above.

With regard to claims 11-13, and 15, the combination is silent to an ink jet recording element having an adhesive polymer disposed between a support and ink receiving layer. However, Kawano suggests including bottom layer as an under coat as per instant claim 11.

Nordeen teaches an ink jet image composite and the method of making such, including an adhesive polymer disposed between a support and ink receptive (receiving) layer, where the adhesive may be a releasable thermoplastic layer of suitable adhesive polymers such as copolymer styrene-butadiene, acrylics, vinyl acetates (vinyl acetates includes vinylesters), and their combinations at col. 2, lines 33-40 and col. 6, lines 41-55.

With regards to claims 12-14, Mochizuki teaches several examples of acrylate latex polymers at col. 6, lines 30-44 including the copolymers of instant claims 12 and 14, and the polyacrylate latex of instant claim 13.

It is well known in the art that the copolymers and polymers claimed are adhesive polymers as taught by Nordeen at col. 6, lines 46-55.

Art Unit: 1774

It would have been obvious to one with ordinary skill in the art to modify the combination to include an adhesive layer as claimed because Mochizuki and Nordeen provide adhesive latex polymers and copolymers in order to produce an ink jet recording element which provides additional assistance for release of the ink receiving layer from the support and provide added protection for a transferred image composite at col. 6, lines 41-46.

Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. in view of Santo et al. in view of Mochizuki et al. and further in view of USPN 6,022,440 to Nordeen et al.

Kawano et al. in view of Santo et al. is relied upon above for all it teaches as set forth above.

With regard to claims 11-13, and 15, the combination is silent to an ink jet recording element having an adhesive polymer disposed between a support and ink receiving layer. However, Santo suggests including an easy-adhesion layer as an under coat as per instant claim 11.

Nordeen teaches an ink jet image composite and the method of making such, including an adhesive polymer disposed between a support and ink receptive (receiving) layer, where the adhesive may be a releasable thermoplastic layer of suitable adhesive polymers such as copolymer styrene-butadiene, acrylics, vinyl acetates (vinyl acetates includes vinylesters), and their combinations at col. 2, lines 33-40 and col. 6, lines 41-55.

Art Unit: 1774

With regards to claims 12-14, Mochizuki teaches several examples of acrylate latex polymers at col. 6, lines 30-44 including the copolymers of instant claims 12 and 14, and the polyacrylate latex of instant claim 13.

It is well known in the art that the copolymers and polymers claimed are adhesive polymers as taught by Nordeen at col. 6, lines 46-55.

It would have been obvious to one with ordinary skill in the art to modify the combination to include an adhesive layer as claimed because Santo suggests an adhesive undercoat layer and Mochizuki and Nordeen provide adhesive latex polymers and copolymers in order to produce an ink jet recording element which provides additional assistance for release of the ink receiving layer from the support and provide added protection for a transferred image composite at col. 6, lines 41-46.

Claims 10 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawano et al. in view of Santo et al., and alternatively in view of SK and further in view of Mukoyoshi.

The combinations are relied upon above.

Mukoyoshi teaches an ink jet recording having amorphous silica, styrene-butadiene copolymer and epichlorohydrin-dimethylamine copolymer (dimethylamine-epichlorohydrine copolymer equivalent) at col. 11, lines 30-60 exhibiting an effect of enhancing the water-resistance of printed ink images.

It would have been obvious to one of ordinary skill in the art to modify the combination to include dimethylamine-epichlorohydrine copolymer because Mukoyoshi teaches an ink jet

Art Unit: 1774

recording exhibiting an effect of enhancing the water-resistance of printed ink images (Abstract, col. 9, lines 1-40, col. 10, lines 60-68, and col. 11, lines 30-60 of Mukoyoshi).

References of Interest

- Maruyama teaches a modified polyvinyl alcohol made from hydrolyzing a copolymer of vinyl acetate and produced by introducing silyl groups like trimethylmethoxysilane (4:5-42) and vinyltrimethoxysilane (5:24-27, instant claim 17), where a known degree of modification is from 0.01 to 10% by mole (7:1-10) and the viscosity is no greater than 70 cp (abstract).

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Santo is used now as a secondary reference as set forth above. All other arguments are moot.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

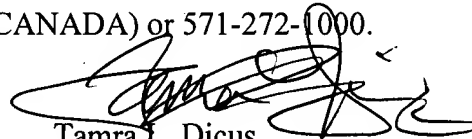
Art Unit: 1774

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tamra L. Dicus
Examiner
Art Unit 1774

May 17, 2007



B. HAMILTON HESS
PRIMARY EXAMINER